

Russian engineers to design the body of the Chinese car

Russian engineers of the of the Advanced Manufacturing Technologies Center of the National Technology Initiative (NTI) of Peter the Great St. Petersburg Polytechnic University (SPbPU) took part in the design of one of the lightest SUVs of the BAIC Group, the largest state automobile Corporation of China. The work was carried out jointly with the CompMechLab® group of companies (CML).



The Chinese automobile giant annually produces about 2.8 million cars. For comparison, the German automobile concern Volkswagen AG, which includes Volkswagen, Audi, Seat, Škoda, Bentley, Bugatti, Lamborghini, Porsche, etc., produced about 10 million cars at the end of 2017.

BAIC Group has been successfully cooperating with St. Petersburg engineers for almost a year. CompMechLab® having years of experience of collaboration with the leaders of the global automotive industry, became a strategic partner of the automaker for a wide range of BAIC YINXIANG cars.

Specialists of St. Petersburg Polytechnic University completed the project within 2,5 months, it is a record time for the industry. Despite technological and

manufacturing constraints, the engineers managed to lighten the weight body by 7.5%.

"We have a digital platform for the creation of "digital twins" of products and processes, virtual polygons and testbeds. Recently, this platform won the contest of Eurasian Economic Union as the "best digital projects of the EAEU". The redesign of the BAIC SUV was carried out on the basis of this platform. Such a project would have been conducted at least three times longer by traditional methods," says Alexey Borovkov, vice-rector for advanced projects of SPbPU, head of the Advanced Manufacturing Technologies Center of the National Technology Initiative.

Optimization of the body structure today is a global trend: weight reduction leads to the decrease in the net cost of the car while increasing its efficiency and ecological compatibility. In addition, modular solutions are actively used in the design and modeling process, which allows to get new car models in the market on a single platform. It gives significant advantages to the manufacturer, especially in the highly competitive Chinese market.

"Redesign and optimization of not only individual parts but the whole structure are often more difficult than designing "from scratch". In this project, we had to take into account the features of assembly, restrictions of materials and technological capabilities of Chinese car industry. However, we managed to implement multi-criteria optimization, redesign inefficient parts, and as a result not only achieve the project targets but also exceed them", – said the chief designer of the Advanced Manufacturing Technologies Center of the National Technology Initiative (NTI) Oleg Klyavin.

The optimized BAIC SUV was manufactured and successfully passed all the necessary tests. Chinese and Russian experts are in the process of negotiation of another joint development project.

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